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BRIARCLIFF MANOR, NY 10510

EXAMINER

SONG, HOON K

ART UNIT

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2882

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/599,018

Applicant(s)

NIESSEN ET AL.

Examiner

Hoon Song

Art Unit

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 March 2008.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-20 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 18 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/85/08)
Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Inventor's Patent Application
6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Graumann et al. (US 2001/0036246A1).

Regarding claims 1 and 9, Graumann teaches an X-ray examination apparatus or method for acquiring X-ray image data of a region of interest, comprising:

an imaging unit comprising an X-ray source (2) for emitting X-ray radiation and an X-ray detector (4) for detecting X-ray radiation after penetration of said region of interest,

a processing device (computer) for determining a desired position of said imaging unit, at which X-ray image data shall be acquired, based on a predetermined image acquisition plan and an actual position of an instrument (paragraph 34),

a tracking device 26 for tracking the actual position of said instrument 27 and said imaging unit,

a control device (computer) for determining position parameters of said imaging unit for said desired position, and

a positioning device (5, 3, 1) for positioning said imaging unit at said desired position by use of said position parameters.

Regarding claim 2, Graumann teaches said positioning device comprises automatic position control device for automatically positioning said imaging unit at said desired position (paragraph 44).

Regarding claims 3, 11-13, 15-16 and 18, Graumann teaches said positioning device comprise a manual position control device 8 for manually positioning said imaging unit at said desired position, a position check device for checking if the desired position has been reached, and a signaling device for signaling if the desired position has been reached or a path to reach the desired position (figure 1).

Regarding claim 4, Graumann teaches said control device is operative for determining said position parameters by use of the tracked position of said instrument and wherein said position device moves said image device to said desired position in temporal proximity to said instrument being moved (paragraph 34).

Regarding claim 5, Graumann teaches said predetermined image acquisition plan is determined based on image data of said region of interest, wherein said image data is pre-acquisitioned 3D image data (paragraph 32).

Regarding claims 6, 10 and 17, Graumann teaches said processing device comprise a calibration device for calibrating said imaging unit with said predetermined image acquisition plan and/or said instrument (paragraph 34).

Regarding claim 7, Graumann teaches said imaging unit further comprises a C-arm on which said x-ray source and said x-ray detector mounted (figure 2).

Regarding claims 8, 14 and 19-20, Graumann teaches said desired position determines a desired plane or projection to be visualized with respect to said instrument or with respect to pre-acquisitioned 3D image data (paragraph 32).

Claims 1-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Zheng et al. (US 2004/0111024A1).

Regarding claims 1 and 9, Zheng teaches an X-ray examination apparatus or method for acquiring X-ray image data of a region of interest, comprising:

- an imaging unit comprising an X-ray source for emitting X-ray radiation and an X-ray detector (24) for detecting X-ray radiation after penetration of said region of interest,

- a processing device (9) for determining a desired position of said imaging unit, at which X-ray image data shall be acquired, based on a predetermined image acquisition plan and an actual position of an instrument (paragraph 42),

- a tracking device 4 for tracking the actual position of said instrument 22 and said imaging unit,

- a control device (9) for determining position parameters of said imaging unit for said desired position, and

- a positioning device (6) for positioning said imaging unit at said desired position by use of said position parameters.

Regarding claim 2, Zheng teaches said positioning device comprises automatic position control device for automatically positioning said imaging unit at said desired position (paragraph 42).

Regarding claims 3, 11-13, 15-16 and 18, Zheng teaches said positioning device comprise a manual position control device 8 for manually positioning said imaging unit at said desired position, a position check device for checking if the desired position has been reached, and a signaling device for signaling if the desired position has been reached or a path to reach the desired position (figure 3).

Regarding claim 4, Zheng teaches said control device is operative for determining said position parameters by use of the tracked position of said instrument and wherein said position device moves said image device to said desired position in temporal proximity to said instrument being moved (paragraph 41).

Regarding claim 5, Zheng teaches said predetermined image acquisition plan is determined based on image data of said region of interest, wherein said image data is pre-acquisitioned 3D image data (paragraph 32).

Regarding claims 6, 10 and 17, Zheng teaches said processing device comprise a calibration device for calibrating said imaging unit with said predetermined image acquisition plan and/or said instrument (paragraph 42).

Regarding claim 7, Zheng teaches said imaging unit further comprises a C-arm on which said x-ray source and said x-ray detector mounted (figure 2).

Regarding claims 8, 14 and 19-20, Zheng teaches said desired position determines a desired plane or projection to be visualized with respect to said instrument or with respect to pre-acquisitioned 3D image data (paragraph 41).

Claims 1-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Mitschke et al. (US 2003/0179856A1).

Regarding claims 1 and 9, Mitschke teaches an X-ray examination apparatus or method for acquiring X-ray image data of a region of interest, comprising:

an imaging unit comprising an X-ray source (13) for emitting X-ray radiation and an X-ray detector (14) for detecting X-ray radiation after penetration of said region of interest,

a processing device (9, 23) for determining a desired position of said imaging unit, at which X-ray image data shall be acquired, based on a predetermined image acquisition plan and an actual position of an instrument (2),

a tracking device 20 for tracking the actual position of said instrument 2 and said imaging unit 1, 30,

a control device (23, 9) for determining position parameters of said imaging unit for said desired position, and

a positioning device (C-arm) for positioning said imaging unit at said desired position by use of said position parameters (figure 1).

Regarding claim 2, Mitschke teaches said positioning device comprises automatic position control device for automatically positioning said imaging unit at said desired position (paragraph 44).

Regarding claims 3, 11-13, 15-16 and 18, Mitschke teaches said positioning device comprise a manual position control device for manually positioning said imaging unit at said desired position, a position check device for checking if the desired position has been reached, and a signaling device for signaling if the desired position has been reached or a path to reach the desired position (paragraph 18).

Regarding claim 4, Mitschke teaches said control device is operative for determining said position parameter s by use of the tracked position of said instrument and wherein said position device moves said image device to said desired position in temporal proximity to said instrument being moved (paragraph 18).

Regarding claim 5, Mitschke teaches said predetermined image acquisition plan is determined based on image data of said region of interest, wherein said image data is pre-acquisitioned 3D image data (paragraph 17).

Regarding claims 6, 10 and 17, Mitschke teaches said processing device comprise a calibration device for calibrating said imaging unit with said predetermined image acquisition plan and/or said instrument (paragraph 18).

Regarding claim 7, Mitschke teaches said imaging unit further comprises a C-arm on which said x-ray source and said x-ray detector mounted (figure 1).

Regarding claims 8, 14 and 19-20, Mitschke teaches said desired position determines a desired plane or projection to be visualized with respect to said instrument or with respect to pre-acquisitioned 3D image data (paragraph 19).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-4 and 6-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Suhm (US 6491429B1) in view of Graumann.

Claims 1-2 and 4-9 are rejected under 35 U.S.C. 102(c) as being anticipated by

Regarding claims 1-2 and 4-9, Suhm teaches an X-ray examination apparatus or method for acquiring X-ray image data of a region of interest, comprising:

an imaging unit comprising an X-ray source for emitting X-ray radiation and an X-ray detector for detecting X-ray radiation after penetration of said region of interest,

processing device for determining a desired position of said imaging unit, at which X-ray image data shall be acquired, based on a predetermined image acquisition plan and/or an actual position of an instrument,

control device for determining position parameters of said imaging unit for said desired position, and

positioning device for positioning said imaging unit at said desired position by use of said position parameters.

However Suhm fails to teach tracking device for positioning the instrument.

Graumann teaches the instrument.

It would have been obvious to one of ordinary skill in the art at the time of the invention to adapt the system of Suhm with the tracking of the instrument as taught by Graumann, since the it would provide more accurate positioning of the instrument.

Response to Arguments

Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoon Song whose telephone number is (571) 272-2494. The examiner can normally be reached on 9:30 AM - 7 PM, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Glick can be reached on (571) 272 - 2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Hoon Song/
Primary Examiner, Art Unit 2882